



1550-SPL

MARKED UP VERSION  
CLAIMS

COPY OF PAPERS  
ORIGINALLY FILED

We claim:

- 1           1. A structure, comprising:  
2           a plurality of cells of a cured resinous material, each cell being joined to at least one  
3           other cell.
- 1           2. The structure according to claim 1, wherein the cells are solid.
- 1           3. The structure according to claim 1, wherein the cells are hollow.
- 1           4. The structure according to claim [1] 3, wherein the hollow cells are filled with  
2           fluid.
- 1           5. The structure according to claim [1] 4, wherein the fluid is a gas.
- 1           6. The structure according to claim [1] 4, wherein the fluid is a liquid.
- 1           7. The structure according to claim 1, wherein the resinous material comprises an  
2           epoxy curable with ultraviolet radiation.
- 1           8. The structure according to claim 4, wherein an interior of the cells has a fluid  
2           pressure substantially similar to an ambient pressure external to the cells.
- 1           9. The structure according to claim 1, wherein the cells all have a similar size.
- 1           10. The structure according to claim 1, wherein the cells are joined together to form a  
2           wall of a tubular structure having continuous walls.

RECEIVED

TO THE MAIL ROOM

1           11. The structure according to claim 1, wherein the cells are arranged in a plurality of  
2 parallel planes.

1           12. The structure according to claim 11, wherein cells in plurality of adjacent planes  
2 are arranged in different positions orthogonal to the planes.

1           13. The structure according to claim 11, wherein the cells in a plurality of adjacent  
2 planes are aligned in a direction perpendicular to the planes.

1           14. The structure according to claim 11, wherein the number of cells in each plane  
2 differs.

1           15. A method of forming a structure, the method comprising:  
2 forming a plurality of individual cells each comprising a mass of uncured resin;  
3 contacting some of the cells with others; and  
4 curing the resin.

1           16. The method according to claim 15, further comprising:  
2 injecting fluid into the masses of uncured resin to inflate the cells of resin.

1           17. The method according to claim 16, wherein the fluid is a liquid.

1           18. The method according to claim 16, wherein the fluid is a gas.

1           19. The method according to claim 17, further comprising:  
2 solidifying the liquid after injecting it into the cells.

- 1           20. The method according to claim 15, wherein the structure is formed by  
2 sequentially forming the cells in a plurality of planes and joining cells in each plane to cells in  
3 an adjacent previously formed plane of cells.
- 1           21. The method according to claim 20, wherein the number of cells formed in each  
2 plane differs.
- 1           22. The method according to claim 20, wherein cells in a plurality of adjacent planes  
2 are arranged in different positions orthogonal to the planes.
- 1           23. The method according to claim 20, wherein cells in a plurality of adjacent planes  
2 are aligned in a direction perpendicular to the planes.
- 1           24. The method according to claim 16, further comprising:  
2 evacuating the fluid from the interior of the cells after curing the resin.
- 1           25. The method according to claim 24, further comprising:  
2 injecting another fluid into the cells after evacuating the fluid utilized in inflating the  
3 cells.
- 1           26. The method according to claim 25, wherein the fluid is a gas.
- 1           27. The method according to claim 25, wherein the fluid is a liquid.
- 1           28. The method according to claim 27, further comprising:  
2 solidifying the liquid after injecting into the inflated cell.
- 1           29. The method according to claim 24, wherein the fluid is evacuated until an interior  
2 of the cells has a gas pressure substantially similar to an ambient pressure external to the cells.

1           30. The method according to claim 25, wherein the other fluid is injected into the  
2 cells until an interior of the cells has a gas pressure substantially similar to an ambient  
3 pressure external to the cells.

1           31. The method according to claim 15, wherein forming the cells of uncured resin  
2 comprises:  
3           feeding the uncured resin through a plurality of resin flow apertures in a plate.

1           32. The method according to claim 15, wherein all of the cells are formed of a similar  
2 size.

1           33. The method according to claim 15, wherein curing the resin comprises exposing  
2 the resin to at least one of ultraviolet radiation, heat, visible light, an electron beam, and  
3 microwave radiation.

1           34. An apparatus for creating a structure comprising a plurality of cells of cured  
2 resinous material, the apparatus comprising:  
3           a plurality of resin flow apertures arranged to permit cells formed at one aperture to  
4 contact cells formed at directly adjacent apertures; and  
5           a resin flow control member arranged in each resin flow aperture and operable to  
6 control a flow of resin from the resin flow apertures.

1        35. The apparatus according to claim 34, further comprising:  
2        a liquid injection port arranged in each resin flow aperture for injecting liquid into a  
3 cell of uncured resin flowing out of the resin flow aperture to inflate the cell; and  
4        a liquid flow control member operable to control a flow of liquid through the port.

1        36. The apparatus according to claim 35, wherein the liquid comprises gas.

1        37. The apparatus according to claim 35, wherein the liquid comprises a fluid.

1        38. The apparatus according to claim 34, further comprising:  
2        a forming plate that the resin flow apertures are formed through.

1        39. The apparatus according to claim 34, further comprising:  
2        at least one cell-retaining member for retaining the cells after curing of the resinous  
3 material.

1        40. The apparatus according to claim 34, further comprising:  
2        a source of energy for curing the uncured resin.

1        41. The apparatus according to claim 40, wherein the energy source comprises at least  
2 one of a source of ultraviolet radiation, a heat source, a source of visible light, an electron  
3 beam source, and a source of microwave radiation.

1        42. The apparatus according to claim 34, wherein the resin flow control member  
2 comprises a shutter valve.

1        43. The apparatus according to claim 34, wherein a position of the resin flow  
2 aperture is alterable.

1

1           44.     The apparatus according to claim 34, wherein the apparatus form cells having a  
2 substantially uniform size

1

1           45.     A structure comprising:

2

2                   a plurality of groups of cells of cured resinous material, each group of cells

3

3 being joined to at least one other group of cells and each cell being joined to at least one other

4

4 cell.

1

1           46.     The structure according to claim 45, wherein the cells in each group are co-

2

2 planar.

1

1

1           47.     The structure according to claim 45, wherein the cells within each group have

2

2 a uniform size.

1

1

1           48.     The structure according to claim 45, wherein the cells among the groups have a

2

2 uniform size.